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10/757,913	01/14/2004	Thai Q. Nguyen	042390.P12359C	5117

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

CHEN, ALAN S

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/757,913

Applicant(s)

NGUYEN ET AL.

Examiner

Alan S. Chen

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-21, 24-27, 30-34 and 36-42 is/are rejected.
- 7) ☒ Claim(s) 16, 22, 23, 28, 29 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/14/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Double Patenting***

1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 15 and 17 are rejected under 35 U.S.C. 101 as claiming the same

invention as that of claim 2 of prior U.S. Patent No. 6,694,383 to Nguyen et al.

(Nguyen). This is a double patenting rejection. Claim 15 of the instant application recite the limitation "priority value" while claim 2 to US Pat. No. 6,694,383 recites the limitation "configuration parameter". Both terms are equivalent according to the specification.

Per Figure 2, element 137, there are **only** two identification fields that appear to dictate ordering requirements, the "pipe\_ID" and the "priority field". Since "pipe\_ID" is the already claimed, configuration parameter must be the "priority field". This is a double patenting rejection. Figure 2, element 131 also shows the identifier must be stored in a register. It does not appear in the specification or make logical sense to store the identifiers in something other than registers.

### ***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the

description: page 2, line 2, "control logic 102". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 40-42 are rejected under 35 U.S.C. 101 because the claims are not limited to tangible embodiments. In view of Applicant's disclosure, specification (pages 11-12, the machine-accessible medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., CD-ROM, hard disk, etc, page 11, lines 17-21) and intangible embodiments (e.g., carrier waves, signals, etc; specification leaves open-ended as to what machine-accessible medium is, page 12 not specify what machine-accessible medium is, only requiring it be configurable with a program, which carrier waves, signals, etc. can be). As such, the claim is not limited to statutory subject matter and is therefore non-statutory. To overcome this rejection the claims need to be amended to include only the physical computer media and not a

communication/transmission media or other intangible or non-functional media.

Examiner suggests using the terms: "machine-accessible *storage* medium".

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 8-14, 18-21, 24-27, 30-34 and 37-42 are rejected under 35 U.S.C. 102(b) as being anticipated by No. 6,021,451 to Bell et al. (Bell; listed on IDS submitted 1/14/2004)).

3. Per claim 1, Bell discloses a method comprising: Sending a first request for information to an interface (*Fig. 4, elements 410 and 420*), the first request including an identifier (*part of the decoded request word, Fig. 4, element 415*); and assigning an identifier for a subsequent request dependent on an ordering requirement (*Fig. 5a, element 558 and Fig. 4, element 420 the queue address order*) associated with the requests.

4. Per claim 2, Bell discloses the method of claim 1 wherein the ordering requirement is based on a configuration parameter (*the queue slot number, Fig. 4, element 420*) associated with the interface (*Fig. 4, element 450*).

5. Per claims 3 and 4, Bell discloses the method of claim 1 in which the identifiers of the first and subsequent requests indicate the ordering requirement for the requests

*(Fig. 4, element 420, placed in sequential order that the requests come in, identifier of where to place request in queue generated by Fig. 4, element 410 and 415).*

6. Per claim 8, Bell discloses the method of claim 1 wherein the first request includes a request header *(part of the decoded request word, Fig. 4, element 415)* that comprises the identifier for the first request.

7. Per claim 9, Bell discloses the method of claim 10, further comprising storing information that orders the subsequent request with respect to the first request *(Fig. 4, element 420, slot 2 for example would be the first request)*.

8. Per claims 10-12, Bell discloses the method of claim 10, in which the assigning and sending occur at separate components *(Fig. 4, element 420 for sending and element 418 for assigning)* and the sending component comprises outbound logic *(Fig. 4, element 420)* and the assigning component comprises the control unit *(TAU, Fig. 4, element 418)*.

9. Per claim 13, Bell discloses the method of claim 10, in which the assigning component *(Fig. 4, element 418)* also detects the receipt of the requested information *(Fig. 4, element 423)*.

10. Per claim 14, Bell discloses the method of claim 10, in which the component that assigns the subsequent request identifier *(Fig. 4, element 422)* communicates the subsequent request identifier to the component that sends the first request *(Fig. 4, element 415)*.

11. Per claims 18 and 26, Bell discloses a method and apparatus comprising: A first component *(Fig. 4, element 410)* configured to send requests for information to an

interface (*Fig. 4, element 450*), the requests including an identifier (*part of the decoded request word, Fig. 4, element 415*); and a second component (*Fig. 4, elements 415 and 420*) configured to store information about the requests, receive indications of each request from the first component, and send to the first component the identifier for each request if an indication for a preceding request is received (*Fig. 4, element 415 and Fig. 5a, element 545*).

12. Per claim 19, Bell discloses the method of claim 18 in which subsequent request identifier indicate the ordering requirement for a previous requests (*Fig. 4, element 420, placed in sequential order that the requests come in, identifier of where to place request in queue generated by Fig. 4, element 410 and 415*).

13. Per claim 20, Bell discloses the method of claim 18, Bell further disclosing the first component (*Fig. 4, element 410*) updates the stored information if the requested information for one of the requests is received (*Fig. 5a, element 545*).

14. Per claim 21, Bell discloses the method of claim 20, Bell further disclosing the indication comprising a request header (*part of the decoded request, Fig. 4, element 415*).

15. Per claim 27, Bell discloses the apparatus of claim 26, in which the second component (*Fig. 4, elements 415 and 420*) is further configured to receive the requested information from the interface (*Fig. 4, element 410*).

16. Per claims 24 and 30, Bell discloses the method and apparatus of claims 18 and 26, in which the second component (*Fig. 4, elements 415 and 420*) is further configured to send the identifier for each request if an indication for the immediately preceding

request is received. In actuality, the second component sends the identifier (*the address in the queue where the request to stored*) regardless of whether the preceding request is received.

17. Per claim 32, Bell discloses the apparatus of claim 26, in which the interface is configured to communicate with multiple peripheral devices (*Fig. 4, element 402, a plurality of device can use this bus, Bell suggest a PCI, Column 5, lines 19-24*).

18. Per claim 33, Bell discloses an apparatus comprising: A device that is configured to generate requests for information (*processor of Fig. 4, element 401*), each request including an identifier (*generated partly by Fig. 4, element 415 for the address in the queue*) that indicates the ordering requirement for the requested information; and an interface (*Fig. 4, element 410*) that is configured to receive the requests from the device, send the requested information to the device and communicate with a peripheral device (*Fig. 4, element 402*) to obtain the requested information.

19. Per claims 25, 31 and 34, Bell discloses the method and apparatus of claims 24, 26 and 33, in which the interface is configured to assign the identifier as a function of an ordering requirement associated with the interface (*generated partly by Fig. 4, element 415 for the address, being the identifier, in the queue*).

20. Per claim 37, Bell discloses a system (*Fig. 4*) comprising: an apparatus (*Fig. 4, element 400*) configured to generate and track requests for information (*Fig. 4, element 415 and 420*) from a peripheral device (*Fig. 4, element 402*) and specify if the requested information is returned to the apparatus in a predetermined order (*Fig. 4, element 420*) or in any arbitrary order (*Column 5, lines 50-67*); and an interface (*Fig. 4, elements 410*



*and 450*) configured to relay the requests and the requested information between the apparatus and the peripheral device and return the requested information in the predetermined order if the apparatus specifies.

21. Per claim 38, Bell discloses the system of claim 37 comprising two sets of the apparatus (*Fig. 4, elements 420 and 430*) and the interface (*Fig. 4, elements 410 and 450*).

22. Per claim 39, Bell discloses the system of claim 38 in which each set is configured to return the requested information in a predetermined order (*in the order of the queues, Fig. 4, element 420 and 430*) or in any arbitrary order (*Column 5, lines 50-67*).

23. Per claim 40, Bell discloses a machine-accessible medium, having stored instructions for causing a digital data processing unit (*Fig. 4, element 400*) to perform operations comprising: Receiving an indication of a request for information sent by a component (*Fig. 4, element 402, the device on the I/O bus being the component*) to an interface (*Fig. 4, element 450*); storing information about the request for information (*Fig. 4, element 420*); and sending an identifier (*the address of the queue from Fig. 4, element 415 to element 420*) for a subsequent request to the component.

24. Per claim 41, Bell discloses the medium of claim 40 in which the sent identifier (*produced by the outbound request decoder pertaining to the address to put the request in the queue*) indicates to the interface (*Fig. 4, element 450*) the order in which the information for the request and the subsequent request are to be delivered (*Fig. 4, elements 415 and 420*).

25. Per claim 42, Bell discloses the medium of claim 40 in which the digital processing unit comprises a control unit (*Fig. 1, element 418*).

***Claim Rejections - 35 USC § 103***

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

27. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

28. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

31. Claims 5-7 and 36 are rejected under 35 USC 103(a) as being unpatentable over Bell in view of US Pat. No. 6,009,484 to Miller (listed on IDS submitted 1/14/2004).

Bell discloses the method and apparatus of claims 3 and 33 and indicates the ability to reply to the request out-of-order (*Column 5, lines 50-67*), but does not disclose expressly the device generating the identifier (*Fig. 4, elements 415 and 420*) being able to generate different identifiers that are in an order other than the order that the requests are generated, and the interface doing the same.

Miller discloses a queue ordering process (*Fig. 3, element 116*) in which an incoming I/O process is assigned a rank (*an identifier*) and placed in the queue based on rank (*Column 2, line 60 thru Column 4, line 8*).

Bell and Miller are analogous art because they are from problem solving area in assigning the order of a queue/buffer.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Bell's invention to allow the identifier assigning component (*Fig. 4, element 410 and 415*) to assign identifiers to requests so that they can be processed out of order similar to Miller's ranking process.

The suggestion/motivation for doing so would have been to allow both in order and out of order request processing and enable priority request processing (*Column 5, lines 50-67 and Abstract of Miller*).

Therefore, it would have been obvious to combine Miller with Bell for the benefit of out of order and priority processing.

### **Allowable Subject Matter**

29. Claims 16,22,23,28,29 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

30. The following is the statement of reasons for the indication of allowable subject matter: The prior art disclosed by the applicant and cited by the Examiner fail to teach or suggest, alone or in combination, ***all*** the limitations of the independent claim(s) (*claims 15, 18, 26 and 33*), particularly where the identifier comprises a “pipe” identifier (*per claims 22,23,28,29 and 35*) and decrementing priority values for other requests that have the same pipe identifier as the first request (*per claim 16*). Note, the pipe identifier is interpreted in light of the specification to be an additional identification besides the priority/rank ID value to identify each request (*Fig. 2, element 133 of application*).

### **Conclusion**

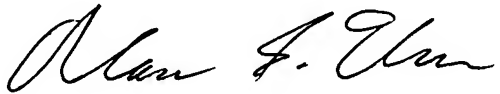
31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patents and patent related publications are cited in the Notice of References Cited (Form PTO-892) attached to this action to further show the state of the art with respect to I/O requests having identifiers for request ordering requirements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S. Chen whose telephone number is 571-272-4143. The examiner can normally be reached on M-F 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim N. Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ASC  
07/11/2006

  
7/12/06